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753 Premature Mortality due to Alcohol-Related Motor Vehicle Traffic Fatalities — United States, 1987
755 Relationship of Syphilis to Drug Use and Prostitution — Connecticut and Philadelphia, Pennsylvania
764 Update — Listeriosis and Pasteurized Milk

Current Trends

Premature Mortality due to Alcohol-Related Motor Vehicle Traffic Fatalities — United States, 1987

In 1987, an estimated 23,630 persons were killed in alcohol-related motor vehicle traffic (MVT) crashes (*1*). These fatalities accounted for an estimated 783,304 years of potential life lost (YPLL) before age 65 (Table 1). Estimates were based on data recorded by the National Highway Traffic Safety Administration (NHTSA) in the Fatal Accident Reporting System (FARS), and they represented 55.3% of all YPLL due to MVT crashes. To be included in FARS, an MVT crash—by definition—had to involve a motor vehicle traveling on a traffic way customarily open to the public and result in a death (of a vehicle occupant, pedestrian, pedalcyclist, or nonmotorist) within 30

TABLE 1. Years of potential life lost (YPLL) before age 65 and YPLL rates from total and alcohol-related motor vehicle traffic (MVT) fatalities, by sex — United States, 1987

MVT fatalities	YPLL* No.	(%)	Rate†
Total*	**1,416,806**	**(100.0)**	**663**
Male	1,027,956	(72.6)	966
Female	388,780	(27.4)	363
Alcohol-related§	**783,304**	**(100.0)**	**367**
Male	603,944	(77.1)	568
Female	179,333	(22.9)	167
Alcohol-intoxication-related§	**609,346**	**(100.0)**	**285**
Male	476,662	(78.2)	448
Female	132,661	(21.8)	124

*Estimates provided by the Fatal Accident Reporting System. Infants dying before 1 year were assigned age 0. Total YPLL includes a few persons of unknown sex.
†Rate per 100,000 persons under age 65. 1987 population estimates obtained from the Bureau of the Census Current Population Reports (*2*).
§Blood alcohol concentration of ≥0.01% for alcohol-related and ≥0.10% for alcohol-intoxication-related fatalities.

YPLL — Continued

days. A fatality was considered to be alcohol-related if it resulted from an MVT crash involving a driver, pedestrian, or pedalcyclist (not necessarily the deceased) with a blood alcohol concentration (BAC) of ≥0.01%. Of the alcohol-related YPLL from MVT crashes, 609,346 (78%) involved a driver, pedestrian, or pedalcyclist who was intoxicated (intoxication was defined as a BAC of ≥0.10%). In some instances, alcohol involvement was not reported and statistical discriminant analysis was used to estimate alcohol involvement (*3*).

Males accounted for more than three-quarters of the YPLL due to alcohol-related and alcohol-intoxication-related MVT crashes. In 1987, the alcohol-related MVT YPLL rate per 100,000 persons was 366.8. Males had an alcohol-related MVT YPLL rate that was 3.4 times that for females (Table 1).

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Editorial Note: The FARS data system, initiated by NHTSA in 1975, contains detailed data gathered from multiple sources for all fatal MVT crashes in the United States. When compared with vital statistics data on MVTs, FARS data offer at least two unique advantages: first, they include information on alcohol involvement, seat-belt use, and vehicle and crash characteristics, and second, they are available within 6 months after the year of the fatality. Although the FARS definition of an MVT fatality differs slightly from that used by the National Center for Health Statistics, the counts from the two data systems are very similar (within 2%) (*4*).

FARS data in combination with vital statistics data enable investigators to estimate the contribution of alcohol-related MVT fatalities to the total YPLL in the United States from all causes. In 1986, the most recent year for which complete national vital statistics data are available, injuries accounted for 31.9% of all YPLL in the United States (Figure 1); the predominant cause of the injury-related YPLL was MVT injuries. FARS data for 1986 indicate that over half (56.8%) of the MVT YPLL were alcohol-related, accounting for 6.8% of the total YPLL in the United States. Alcohol-intoxication-related MVT crashes accounted for 44.5% of all MVT YPLL and 5.3% of the total YPLL in the United States.

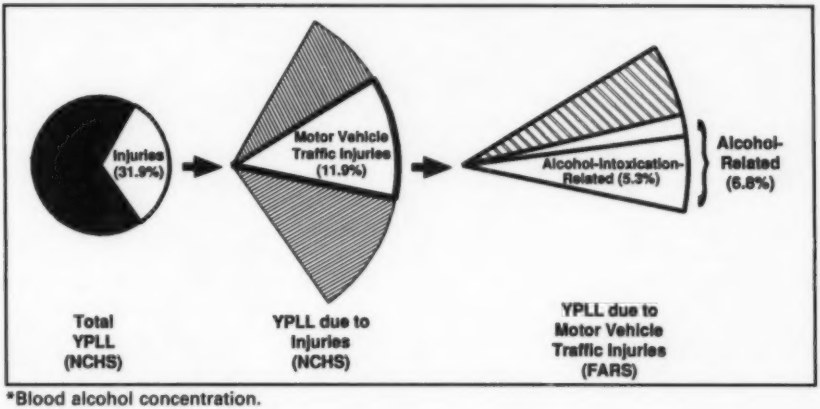
Since 1982, the first year in which alcohol involvement was consistently recorded in FARS, the proportion of MVT fatalities that were alcohol-related has declined (*1*). From 1982 through 1987, the proportion of drivers who were intoxicated at the time of a fatal crash decreased 17%. For teenaged drivers in fatal crashes, the proportion who were intoxicated declined 34%. Reductions in alcohol involvement between 1982 and 1987 occurred under most fatal-crash circumstances; however, reductions were relatively greater for teenaged drivers, females, surviving drivers, teenaged pedestrians, and older drivers. Reductions also were relatively greater in daytime crashes. In contrast, the reduction in alcohol involvement in fatal MVT crashes was minimal or nonexistent for drivers aged 25–34, motorcycle drivers, and pedestrians aged 20 to 64, and in fatal crashes occurring late at night.

The proportion of MVT-related crashes involving alcohol may have been reduced because of 1) increased public awareness of the problem, 2) enactment of more stringent laws and increased enforcement of existing laws by state and local governments, and 3) laws that raised the drinking age to 21 in all states. Public health workers, highway safety officials, and medical-care providers should continue coordinated efforts to educate the public about this health problem.

YPLL — Continued

The National Institute on Alcohol Abuse and Alcoholism and NHTSA are collaborating in a public, private, state, and federal prevention effort centered around this year's "National Drunk and Drugged Driving Awareness Week," December 12–16, 1988.

FIGURE 1. Contribution of alcohol-related (BAC* ≥0.01%) and alcohol-intoxication-related (BAC ≥0.10%) motor vehicle traffic injuries to the total years of potential life lost (YPLL) before age 65, United States, 1986



*Blood alcohol concentration.

References

1. National Highway Traffic Safety Administration. Fatal Accident Reporting System data tapes, 1982–1987 (separate years). Washington, DC: US Department of Transportation, National Highway Traffic Safety Administration, 1982–1987.
2. Bureau of the Census. United States population estimates, by age, sex, and race: 1980 to 1987. Washington, DC: US Department of Commerce, Bureau of the Census, 1988. (Current Population Reports; series P-25, no. 1022).
3. Fell JC, Klein T. The nature of the reduction in alcohol in US fatal crashes. Warrendale, Pennsylvania: Society of Automotive Engineers, Inc, 1987. (SAE technical paper series 860038).
4. Conn JM. Deaths from motor vehicle-related injuries, 1978–1984. In: Public health surveillance of 1990 injury control objectives for the nation. CDC surveillance summaries, February 1988. MMWR 1988;37(suppl SS-1):5–12.

Relationship of Syphilis to Drug Use and Prostitution — Connecticut and Philadelphia, Pennsylvania

Since 1984, in many areas of the United States, reported rates of syphilis have greatly increased (*1*). Between 1984 and 1987, annual rates of syphilis (primary and secondary) increased 70% in the state of Connecticut and 74% in the city of Philadelphia (Figure 1). These trends have continued in 1988; in the first quarter of this year, annualized rates increased by 70% in Connecticut and by 25% in Philadelphia compared with 1987 annual rates. Investigations were conducted at these two sites to identify factors associated with this increase.

Syphilis — Continued

In Philadelphia and Connecticut, over 80% of all newly diagnosed patients with early syphilis are interviewed and counseled. Cases are detected through reporting by public clinics and private health-care providers and through laboratory screening. During the interviews, information is collected about patients' lifestyles to help locate sexual contacts. In Philadelphia and Connecticut, records from these interviews were abstracted and analyzed for the years 1985–1987. In Connecticut, all interviews of persons with primary and secondary syphilis were abstracted; in Philadelphia, a sample of interviews* was chosen that involved persons with primary, secondary, and latent syphilis present <1 year.

At both sites during the 3-year period, the proportion of men with syphilis who reported sexual contact with men decreased substantially. In Connecticut, the proportion of men with syphilis who reported being homosexual or bisexual decreased from 38% (48/126) in 1985 to 11% (21/197) in 1987; in Philadelphia, the percentage declined from 53% (49/93) to 18% (25/137) during this 3-year period.

In contrast, recorded use of illicit drugs and reported prostitution or contact with a prostitute among heterosexual syphilis patients increased greatly during this period. Among females at both study sites, the proportion reporting to be prostitutes increased more than threefold and the proportion reporting use of drugs increased more than sixfold (Figure 2). Heterosexual male syphilis patients showed similar but smaller increases in recorded drug use. Prostitute contact by this group occurred more frequently in Connecticut than in Philadelphia but increased at both sites.

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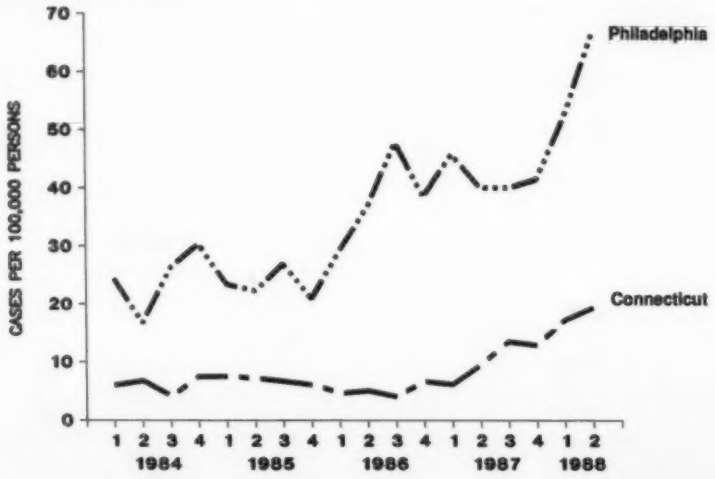
*Abstracted interviews consisted of all those conducted in the first 3 months of 1985 and 1986 and a systematically selected sample of two-thirds of interviews conducted in the first 3 months of 1987.

FIGURE 1. Cases of primary and secondary syphilis, by quarter — Connecticut and Philadelphia, 1984–1988



Syphilis — Continued

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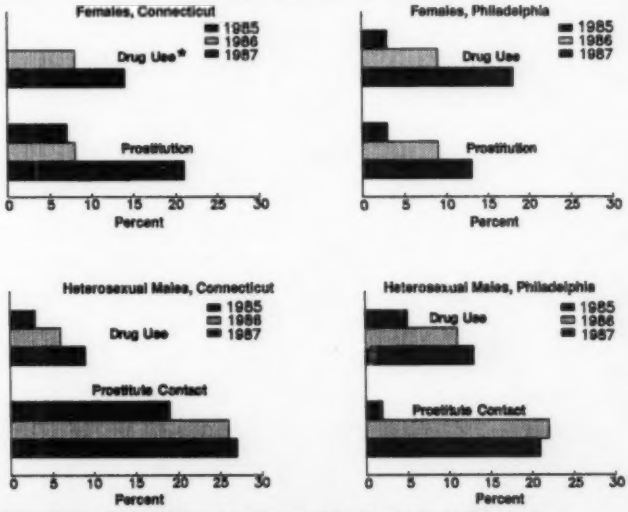
Editorial Note: Although prostitution has long been associated with syphilis (and other sexually transmitted diseases) (*2*), it appears to have been relatively unimportant in the overall epidemiology of syphilis in the United States during the last 2 decades (*3,4*). Drug use has only recently been associated with the spread of syphilis (*1*). Since drug use and prostitute contact were not recorded systematically on case interview forms, the true frequency of these behaviors among syphilis patients is probably underestimated. This underreporting of these behaviors, if combined with changing interviewers' perceptions, could bias the findings in Connecticut and Philadelphia. However, the consistency between the two sites and the magnitude of the increase in reporting of prostitution and drug use suggest that the trends observed in Connecticut and Philadelphia reflect real changes in the epidemiology of syphilis.

The decrease in the proportion of male syphilis patients who are homosexual/bisexual has been noted in California and New York City (*5*), in outbreaks in Manitoba (*6*) and Florida (*7*), and in a sample of states with recent increases in syphilis (*8*). In the Florida outbreak, prostitutes were also found to be an important risk group. The results of the studies in Connecticut and Philadelphia support these other findings and suggest that the emergence of syphilis among prostitutes, drug users, and their sexual contacts may be a widespread national phenomenon.

The possibility of an increase in syphilis among persons in these risk groups has important implications for the control of syphilis and other sexually transmitted diseases, including human immunodeficiency virus (HIV) infections. Prostitutes tend

FIGURE 2. Reported illicit drug use and prostitution among syphilis patients, by category and year — Connecticut and Philadelphia, 1985–1987



*The percentage of syphilis patients who reported drug use for 1985 was 0.

Syphilis — Continued

to have large numbers of anonymous sexual partners who are difficult to locate by traditional methods of partner notification. Prostitutes who also frequently use intravenous (IV) drugs and, in some parts of the country, those with a history of IV-drug use have high rates of infection with HIV (*9*). Recent studies have suggested that sexually transmitted diseases that cause genital ulcers, such as syphilis, greatly increase the likelihood that HIV infection, when present, will be transmitted (*10–12*). To limit the spread of syphilis, which may also help limit the spead of HIV, public health officials may need to modify current control methods to better identify and treat syphilis-infected prostitutes, drug users, and their sexual contacts (*1*).

References

1. CDC. Syphilis and congenital syphilis—United States, 1985–1988. MMWR 1988;37:486–9.
2. Brandt AM. The syphilis epidemic and its relation to AIDS. Science 1988;239:375–80.
3. Willcox RR. Prostitution and venereal disease. Br J Vener Dis 1962;38:37–42.
4. Perine PL, Handsfield HH, Holmes KK, Blount JH. Epidemiology of the sexually transmitted diseases. Ann Rev Public Health 1985;6:85–106.

(Continued on page 764)

TABLE I. Summary — cases of specified notifiable diseases, United States

Disease	49th Week Ending			Cumulative, 49th Week Ending		
	Dec. 10, 1988	Dec. 12, 1987	Median 1983-1987	Dec. 10, 1988	Dec. 12, 1987	Median 1983-1987
Acquired Immunodeficiency Syndrome (AIDS)	287	U*	110	28,693	19,453	7,477
Aseptic meningitis	135	113	180	6,451	10,661	10,350
Encephalitis: Primary (arthropod-borne & unspec)	10	19	24	723	1,234	1,234
Post-infectious	-	2	2	112	97	99
Gonorrhea: Civilian	13,172	13,129	17,655	652,983	723,215	836,455
Military	271	189	248	10,920	15,231	19,594
Hepatitis: Type A	652	611	530	24,795	23,352	21,572
Type B	451	581	545	21,298	23,997	24,279
Non A, Non B	47	74	76	2,364	2,773	3,329
Unspecified	58	60	111	2,230	2,923	4,857
Legionellosis	18	12	12	925	892	725
Leprosy	6	6	5	170	190	226
Malaria	7	7	19	933	835	949
Measles: Total†	83	19	14	2,826	3,567	2,717
Indigenous	82	16	13	2,505	3,145	2,283
Imported	1	3	1	321	422	305
Meningococcal infections	47	62	56	2,615	2,728	2,517
Mumps	110	199	60	4,408	12,058	3,098
Pertussis	103	36	36	2,778	2,381	2,381
Rubella (German measles)	15	3	3	204	332	601
Syphilis (Primary & Secondary): Civilian	697	658	565	37,985	33,352	26,274
Military	3	1	1	148	151	153
Toxic Shock syndrome	8	6	8	327	317	349
Tuberculosis	447	508	508	19,970	20,265	20,265
Tularemia	-	1	2	170	187	187
Typhoid Fever	9	2	10	368	335	357
Typhus fever, tick-borne (RMSF)	3	2	4	608	588	734
Rabies, animal	73	59	68	4,055	4,416	5,096

TABLE II. Notifiable diseases of low frequency, United States

	Cum. 1988		Cum. 1988
Anthrax	-	Leptospirosis	43
Botulism: Foodborne	26	Plague	14
Infant (Pa. 1)	34	Poliomyelitis, Paralytic	1
Other	4	Psittacosis (Upstate N.Y. 3, Calif. 1)	91
Brucellosis (Fla. 1, Tenn. 1)	69	Rabies, human	-
Cholera	7	Tetanus	48
Congenital rubella syndrome	4	Trichinosis (Calif. 1)	41
Congenital syphilis, ages < 1 year	426		
Diphtheria	-		

*Because AIDS cases are not received weekly from all reporting areas, comparison of weekly figures may be misleading.
†One of the 83 reported cases for this week was imported from a foreign country or can be directly traceable to a known internationally imported case within two generations.

TABLE III. Cases of specified notifiable diseases, United States, weeks ending December 10, 1988 and December 12, 1987 (49th Week)

Reporting Area	AIDS	Aseptic Meningitis	Encephalitis		Gonorrhea (Civilian)		Hepatitis (Viral), by type				Legionellosis	Leprosy
			Primary	Post-infectious			A	B	NA,NB	Unspecified		
	Cum. 1988	Cum. 1988	Cum. 1988	Cum. 1988	Cum. 1988	Cum. 1987	Cum. 1988	Cum. 1988	Cum. 1988	Cum. 1988	Cum. 1988	Cum. 1988
UNITED STATES	28,693	6,451	723	112	652,983	723,215	24,795	21,298	2,364	2,230	925	170
NEW ENGLAND	1,264	390	25	4	20,551	22,468	819	1,161	113	90	52	15
Maine	27	21	2	-	371	666	18	53	5	2	4	-
N.H.	38	40	1	3	252	382	45	69	11	4	5	-
Vt.	10	29	8	-	110	205	16	53	7	4	5	-
Mass.	711	160	8	1	6,949	7,887	377	685	71	63	35	14
R.I.	82	87	-	-	1,919	2,034	84	80	11	1	3	1
Conn.	396	53	6	-	10,950	11,294	279	221	8	16	-	-
MID. ATLANTIC	9,576	717	54	4	101,977	114,218	1,899	3,061	182	315	210	8
Upstate N.Y.	1,258	376	35	1	15,171	16,661	707	724	72	19	79	-
N.Y. City	5,251	140	8	3	41,750	61,103	350	1,291	19	235	45	7
N.J.	2,296	61	11	-	14,667	15,578	433	683	60	44	40	1
Pa.	771	140	-	-	30,389	20,876	409	363	31	17	46	-
E.N. CENTRAL	2,041	1,067	186	13	111,217	111,139	1,698	2,264	213	126	235	7
Ohio	467	422	62	3	25,279	25,238	317	528	37	19	87	-
Ind.	80	97	28	-	8,598	8,934	155	344	20	30	27	-
Ill.	972	105	36	10	33,243	31,947	621	495	76	35	21	6
Mich.	417	395	43	-	35,390	35,369	384	636	55	39	60	-
Wis.	105	48	17	-	8,707	9,651	221	262	25	3	40	1
W.N. CENTRAL	705	257	57	12	28,063	29,075	1,307	963	100	35	74	1
Minn.	156	30	16	4	3,700	4,311	96	134	23	4	4	-
Iowa	39	36	9	3	2,110	2,870	46	79	13	2	18	-
Mo.	364	107	1	-	16,332	15,459	783	579	44	18	23	-
N. Dak.	4	6	4	-	178	272	9	14	3	6	1	-
S. Dak.	7	18	5	2	454	584	29	6	3	-	14	-
Nebr.	45	11	12	2	1,416	1,917	46	40	2	-	5	-
Kans.	90	49	10	1	3,875	3,662	288	111	12	5	9	1
S. ATLANTIC	5,064	1,396	104	40	184,333	188,964	2,310	4,448	387	339	141	1
Del.	62	44	3	-	2,920	3,230	46	134	8	4	14	-
Md.	562	198	11	3	19,343	21,713	280	675	41	27	20	1
D.C.	462	20	1	1	13,824	12,576	16	47	4	1	1	-
Va.	342	204	32	4	13,517	13,779	351	311	73	227	11	-
W. Va.	20	37	22	-	1,261	1,341	14	67	5	4	-	-
N.C.	265	165	21	-	26,401	28,770	351	800	90	-	31	-
S.C.	171	21	-	1	14,653	14,192	40	524	12	6	27	-
Ga.	716	160	1	2	34,909	33,745	593	648	15	7	23	-
Fla.	2,474	547	13	29	57,505	59,618	619	1,242	119	63	14	-
E.S. CENTRAL	719	449	63	8	51,927	54,406	719	1,377	175	13	48	2
Ky.	89	156	22	1	5,289	5,487	469	270	62	2	20	-
Tenn.	324	50	16	-	18,193	19,202	159	631	40	-	8	-
Ala.	199	185	25	2	15,492	16,911	55	343	62	10	14	2
Miss.	107	58	-	5	12,953	12,806	36	133	11	1	6	-
W.S. CENTRAL	2,356	779	87	3	70,079	81,116	3,110	1,954	204	527	28	39
Ark.	80	17	6	-	6,973	9,177	334	109	8	17	5	-
La.	340	120	24	1	13,983	13,168	154	341	25	18	7	7
Okla.	127	76	8	-	6,667	8,801	480	177	42	35	16	-
Tex.	1,809	566	49	2	42,456	49,970	2,142	1,327	129	459	-	32
MOUNTAIN	832	230	28	4	14,051	18,712	3,275	1,537	237	168	47	1
Mont.	16	4	-	-	386	535	43	54	10	4	2	-
Idaho	10	3	-	-	312	647	126	110	9	4	2	-
Wyo.	6	2	-	-	188	400	5	12	3	-	3	-
Colo.	299	75	3	-	3,126	4,256	224	189	64	76	8	1
N. Mex.	59	24	3	1	1,382	2,033	525	225	18	1	4	-
Ariz.	261	80	13	1	5,143	6,377	1,834	593	73	56	20	-
Utah	61	25	4	2	509	612	290	132	38	18	3	-
Nev.	120	17	5	-	3,003	3,852	226	222	22	9	5	-
PACIFIC	6,136	1,166	119	24	70,785	103,117	9,658	4,533	773	617	90	96
Wash.	362	-	7	4	6,481	8,394	2,224	843	191	73	22	7
Oreg.	175	-	-	-	3,034	3,747	1,307	553	88	21	4	1
Calif.	5,476	1,036	108	20	59,731	86,615	5,552	3,035	481	505	61	73
Alaska	19	25	4	-	976	1,574	563	52	8	13	-	1
Hawaii	104	105	2	-	563	787	12	50	5	5	3	14
Guam	1	-	-	-	136	180	9	13	-	2	1	5
P.R.	1,229	75	4	1	1,252	1,813	53	247	41	41	-	3
V.I.	32	-	-	-	422	276	1	7	2	-	-	-
Amer. Samoa	-	-	-	-	74	82	7	2	-	5	-	2
C.N.M.I.	-	-	-	-	47	-	1	3	-	5	-	1

N: Not notifiable U: Unavailable C.N.M.I.: Commonwealth of the Northern Mariana Islands

TABLE III. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending December 10, 1988 and December 12, 1987 (49th Week)

Reporting Area	Malaria	Measles (Rubeola)					Meningococcal Infections	Mumps		Pertussis			Rubella		
		Indigenous		Imported*		Total									
	Cum. 1988	1988	Cum. 1988	1988	Cum. 1988	Cum. 1987	Cum. 1988	1988	Cum. 1988	1988	Cum. 1988	Cum. 1987	1988	Cum. 1988	Cum. 1987
UNITED STATES	933	82	2,505	1	321	3,867	2,615	110	4,408	103	2,778	2,381	15	204	332
NEW ENGLAND	71	-	83	-	54	282	222	1	128	-	176	169	-	9	2
Maine	3	-	7	-	-	3	10	-	-	-	24	33	-	-	1
N.H.	3	-	67	-	44	163	23	1	106	-	47	43	-	5	-
Vt.	5	-	-	-	-	26	17	-	5	-	5	4	-	-	-
Mass.	34	-	2	-	2	66	98	-	7	-	80	54	-	3	1
R.I.	7	-	-	-	-	2	21	-	-	-	17	5	-	1	-
Conn.	19	-	7	-	8	22	53	-	10	-	23	30	-	-	-
MID. ATLANTIC	163	8	911	-	60	586	288	4	354	65	300	293	-	14	12
Upstate N.Y.	39	-	19	-	16	43	134	2	99	64	206	163	-	2	10
N.Y. City	88	-	48	-	6	466	68	-	101	1	9	19	-	7	1
N.J.	11	8	317	-	12	39	63	2	57	-	17	21	-	3	1
Pa.	24	-	529	-	14	40	23	-	97	-	68	90	-	2	-
E.N. CENTRAL	50	-	141	-	108	385	368	10	871	-	254	256	-	31	42
Ohio	11	-	2	-	83	5	136	-	130	-	49	74	-	1	-
Ind.	4	-	57	-	-	-	30	1	78	-	74	17	-	-	-
Ill.	3	-	56	-	16	205	75	4	313	-	44	17	-	26	31
Mich.	23	-	26	-	5	29	86	5	224	-	37	47	-	4	9
Wis.	9	-	-	-	4	146	41	-	126	-	50	101	-	-	2
W.N. CENTRAL	18	-	11	-	3	230	98	42	247	14	142	139	-	2	2
Minn.	6	-	10	-	1	39	20	-	-	14	63	14	-	-	-
Iowa	2	-	-	-	1	-	-	-	36	-	34	58	-	-	1
Mo.	6	-	1	-	1	189	37	2	42	-	22	34	-	-	-
N. Dak.	-	-	-	-	-	1	1	-	-	-	11	14	-	-	-
S. Dak.	-	-	-	-	-	-	5	-	1	-	5	3	-	-	-
Nebr.	1	-	-	-	-	-	12	-	11	-	-	1	-	-	-
Kans.	3	-	-	-	-	1	21	40	157	-	7	15	-	2	1
S. ATLANTIC	121	19	415	-	22	177	447	11	728	2	250	308	-	18	19
Del.	1	-	-	-	-	32	2	-	1	-	7	5	-	-	2
Md.	21	-	12	-	5	10	53	2	166	-	46	19	-	1	3
D.C.	12	-	-	-	-	1	10	7	282	-	1	-	-	-	1
Va.	20	19	237	-	2	1	54	-	136	-	24	55	-	11	1
W. Va.	3	-	6	-	-	-	7	1	19	1	10	39	-	-	-
N.C.	16	-	-	-	5	6	67	-	51	-	66	119	-	1	1
S.C.	10	-	-	-	-	2	38	-	6	-	1	-	-	-	-
Ga.	6	-	-	-	-	10	69	1	32	1	37	23	-	2	2
Fla.	32	-	160	-	10	115	147	-	35	-	58	48	-	3	9
E.S. CENTRAL	20	-	69	-	-	8	243	3	446	2	102	48	-	2	3
Ky.	1	-	35	-	-	-	56	3	213	-	12	2	-	-	2
Tenn.	-	-	-	-	-	-	131	-	215	-	29	15	-	2	1
Ala.	10	-	-	-	-	4	40	-	15	2	57	24	-	-	-
Miss.	9	-	34	-	-	4	16	N	N	-	4	7	-	-	-
W.S. CENTRAL	83	6	20	1	4	448	176	26	861	3	236	311	13	24	12
Ark.	4	-	-	-	1	-	21	3	136	1	35	13	-	4	2
La.	12	-	-	-	-	-	49	14	315	2	20	50	-	-	-
Okla.	10	-	8	-	-	4	19	-	197	-	62	170	-	1	6
Tex.	57	6	12	1†	3	444	87	9	213	-	119	78	13	19	4
MOUNTAIN	43	12	147	-	33	497	79	6	214	13	809	220	-	6	25
Mont.	5	12	35	-	31	128	2	-	2	-	2	7	-	-	8
Idaho	2	-	-	-	1	-	8	1	7	-	330	78	-	-	1
Wyo.	-	-	-	-	-	2	-	-	4	-	2	5	-	-	1
Colo.	15	-	112	-	1	9	19	1	33	-	29	69	-	2	-
N. Mex.	2	-	-	-	-	318	13	N	N	1	54	13	-	-	-
Ariz.	13	-	-	-	-	36	20	2	141	12	364	38	-	-	5
Utah	4	-	-	-	-	1	15	-	7	-	27	10	-	3	10
Nev.	2	-	-	-	-	3	2	2	20	-	1	-	-	1	-
PACIFIC	364	37	708	-	47	962	696	7	559	4	509	637	2	98	215
Wash.	25	-	7	-	-	47	64	1	60	1	114	98	-	-	2
Oreg.	16	-	6	-	2	102	44	N	N	-	50	71	-	-	2
Calif.	309	37	681	-	37	786	584	6	457	3	278	228	2	70	139
Alaska	3	-	1	-	-	1	7	-	13	-	7	6	-	-	2
Hawaii	11	-	3	-	8	4	17	-	16	-	60	236	-	28	70
Guam	-	-	-	-	1	2	-	-	3	-	-	-	-	1	1
P.R.	2	-	226	-	-	771	12	-	10	-	15	20	-	3	3
V.I.	-	-	-	-	-	-	-	1	34	-	-	-	-	-	1
Amer. Samoa	-	-	-	-	-	1	3	-	3	-	-	-	-	-	-
C.N.M.I.	1	-	-	-	-	-	1	-	2	-	-	-	-	-	-

*For measles only, imported cases includes both out-of-state and international importations.
N: Not notifiable U: Unavailable †International §Out-of-state

TABLE III. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending Decembe 10, 1988 and December 12, 1987 (49th Week)

Reporting Area	Syphilis (Civilian) (Primary & Secondary)		Toxic-shock Syndrome	Tuberculosis		Tula-remia	Typhoid Fever	Typhus Fever (Tick-borne) (RMSF)	Rabies, Animal
	Cum. 1988	Cum. 1987	Cum. 1988	Cum. 1988	Cum. 1987	Cum. 1988	Cum. 1988	Cum. 1988	Cum. 1988
UNITED STATES	37,986	33,362	327	19,970	20,265	176	368	608	4,055
NEW ENGLAND	1,149	613	24	509	601	4	37	12	15
Maine	12	1	4	20	28	-	-	-	1
N.H.	6	3	5	11	18	-	-	-	5
Vt.	3	4	2	5	16	-	1	-	-
Mass.	417	293	10	300	328	3	21	7	-
R.I.	33	12	-	39	58	-	7	2	-
Conn.	678	300	3	134	153	1	8	3	9
MID. ATLANTIC	9,009	6,157	48	4,134	3,732	-	73	19	472
Upstate N.Y.	564	241	22	519	490	-	15	11	44
N.Y. City	6,172	4,584	6	2,264	1,841	-	45	6	-
N.J.	956	674	3	692	677	-	11	-	14
Pa.	1,317	658	17	659	724	-	2	2	414
E.N. CENTRAL	1,137	828	46	2,216	2,235	1	33	34	143
Ohio	108	104	31	417	400	-	7	22	5
Ind.	51	57	1	232	233	-	2	2	29
Ill.	520	418	1	979	1,013	-	18	7	31
Mich.	425	191	13	489	499	1	4	2	35
Wis.	33	58	-	99	90	-	2	1	43
W.N. CENTRAL	226	175	45	490	573	77	6	92	452
Minn.	18	22	6	85	112	3	4	2	128
Iowa	23	26	7	54	38	-	-	-	13
Mo.	150	79	12	236	311	47	2	56	21
N. Dak.	1	1	3	15	13	1	-	-	104
S. Dak.	-	11	4	33	24	16	-	7	129
Nebr.	28	16	4	16	25	3	-	1	19
Kans.	6	20	9	51	50	7	-	26	38
S. ATLANTIC	13,654	11,390	21	4,265	4,333	5	42	200	1,397
Del.	99	67	2	42	39	2	-	1	57
Md.	678	596	3	399	384	-	3	22	314
D.C.	680	392	-	174	149	-	2	-	12
Va.	414	311	-	384	409	2	12	17	348
W. Va.	37	13	-	88	98	-	1	2	98
N.C.	791	684	9	504	564	-	2	107	8
S.C.	707	668	4	461	438	-	-	24	128
Ga.	2,446	1,581	-	695	777	1	8	24	286
Fla.	7,802	7,078	3	1,538	1,474	-	14	3	146
E.S. CENTRAL	1,901	1,805	25	1,643	1,829	11	3	91	284
Ky.	63	24	10	351	410	5	1	30	117
Tenn.	796	719	11	513	571	5	-	39	69
Ala.	552	475	3	487	519	-	1	10	91
Miss.	490	587	1	292	329	1	1	12	7
W.S. CENTRAL	4,149	4,146	34	2,537	2,350	53	8	144	520
Ark.	247	240	2	294	289	34	-	31	86
La.	827	788	-	311	285	-	4	2	11
Okla.	137	169	11	233	231	16	-	93	35
Tex.	2,938	2,969	21	1,699	1,545	3	4	18	388
MOUNTAIN	795	665	35	542	607	11	11	12	353
Mont.	3	9	-	31	18	-	1	6	199
Idaho	4	6	5	19	29	-	-	2	11
Wyo.	1	3	-	5	2	2	-	3	38
Colo.	105	119	3	74	146	5	3	1	28
N. Mex.	47	54	2	91	98	2	1	-	11
Ariz.	158	284	16	233	258	1	6	-	41
Utah	16	24	9	29	25	1	-	-	9
Nev.	461	166	-	60	33	-	-	-	16
PACIFIC	5,965	7,573	49	3,634	4,005	8	155	4	419
Wash.	196	159	8	218	232	1	14	1	-
Oreg.	295	280	1	142	121	1	7	1	-
Calif.	5,431	7,104	39	3,067	3,405	4	128	2	393
Alaska	15	4	-	48	61	2	1	-	26
Hawaii	28	16	1	159	186	-	5	-	-
Guam	3	2	-	30	26	-	-	-	-
P.R.	641	850	-	219	280	-	5	-	66
V.I.	2	10	-	6	2	-	-	-	-
Amer. Samoa	-	-	-	4	11	-	1	-	-
C.N.M.I.	1	-	-	24	-	-	-	-	-

U: Unavailable

TABLE IV. Deaths in 121 U.S. cities,* week ending December 10, 1988 (49th Week)

Reporting Area	All Causes, By Age (Years)						P&I**
	All Ages	≥65	45-64	25-44	1-24	<1	Total
NEW ENGLAND	700	494	114	63	13	16	69
Boston, Mass.	195	120	37	25	4	9	29
Bridgeport, Conn.	58	42	8	5	2	1	5
Cambridge, Mass.	16	13	3	-	-	-	1
Fall River, Mass.	17	15	1	1	-	-	-
Hartford, Conn.	72	44	17	8	2	1	2
Lowell, Mass.	24	20	1	3	-	-	4
Lynn, Mass.	20	15	3	2	-	-	1
New Bedford, Mass.	24	18	3	3	-	-	1
New Haven, Conn.	47	32	8	4	1	2	6
Providence, R.I.	68	51	10	6	-	1	5
Somerville, Mass.	11	8	2	1	-	-	-
Springfield, Mass.	52	36	11	1	3	1	3
Waterbury, Conn.	42	33	7	2	-	-	3
Worcester, Mass.	54	47	3	2	1	1	9
MID. ATLANTIC	2,779	1,797	561	278	61	79	338
Albany, N.Y.	43	36	2	1	2	2	3
Allentown, Pa.	24	23	1	-	-	-	-
Buffalo, N.Y.	120	82	25	8	2	2	4
Camden, N.J.	43	18	13	7	3	2	1
Elizabeth, N.J.	16	12	2	2	-	-	2
Erie, Pa.†	45	31	12	2	-	-	1
Jersey City, N.J.	70	44	18	4	-	3	1
N.Y. City, N.Y.	1,488	900	307	201	38	42	255
Newark, N.J.	44	19	11	10	-	4	6
Paterson, N.J.	42	25	6	3	-	8	2
Philadelphia, Pa.	390	272	78	16	11	12	30
Pittsburgh, Pa.†	66	39	19	7	1	-	-
Reading, Pa.	35	31	4	-	-	-	6
Rochester, N.Y.	104	80	15	6	2	1	10
Schenectady, N.Y.	29	26	3	-	-	-	-
Scranton, Pa.†	32	22	7	3	-	-	5
Syracuse, N.Y.	104	68	26	5	2	3	9
Trenton, N.J.	35	25	9	1	-	-	-
Utica, N.Y.	16	16	-	-	-	-	-
Yonkers, N.Y.	33	28	3	2	-	-	3
E.N. CENTRAL	2,406	1,616	491	143	64	92	94
Akron, Ohio	67	49	10	4	2	2	-
Canton, Ohio	41	29	10	1	-	1	3
Chicago, Ill§	564	362	125	45	10	22	16
Cincinnati, Ohio	116	82	23	4	2	5	14
Cleveland, Ohio	160	94	41	11	3	11	3
Columbus, Ohio	163	108	31	7	8	9	-
Dayton, Ohio	118	88	25	1	2	2	4
Detroit, Mich.	255	147	63	27	12	6	2
Evansville, Ind.	79	61	6	5	1	6	1
Fort Wayne, Ind.	63	47	9	3	3	1	6
Gary, Ind.§	15	10	3	1	1	-	1
Grand Rapids, Mich.	52	37	13	-	1	1	9
Indianapolis, Ind.	211	140	36	15	9	11	3
Madison, Wis.	44	31	7	3	1	2	4
Milwaukee, Wis.	141	101	30	2	3	5	7
Peoria, Ill.	48	36	6	2	-	2	5
Rockford, Ill.	47	33	9	2	2	1	4
South Bend, Ind.	51	40	6	3	-	2	3
Toledo, Ohio§	100	73	20	4	2	1	8
Youngstown, Ohio	73	48	18	3	2	2	1
W.N. CENTRAL	808	634	155	60	26	23	44
Des Moines, Iowa	74	53	16	1	2	2	2
Duluth, Minn.	37	30	5	2	-	-	3
Kansas City, Kans.	46	28	10	4	2	2	3
Kansas City, Mo.	174	109	37	16	7	5	12
Lincoln, Nebr.	29	21	6	2	-	-	2
Minneapolis, Minn.	161	117	22	10	5	7	14
Omaha, Nebr.	87	61	10	10	4	2	5
St. Louis, Mo.	156	118	26	10	1	1	-
St. Paul, Minn.	78	58	12	4	2	2	1
Wichita, Kans.	56	39	11	1	3	2	2
S. ATLANTIC	1,312	789	295	133	51	44	57
Atlanta, Ga.	158	84	41	22	7	4	1
Baltimore, Md.	234	146	53	17	10	8	11
Charlotte, N.C.	93	60	25	5	-	3	9
Jacksonville, Fla.	144	86	33	11	10	4	1
Miami, Fla.	117	54	34	22	2	5	1
Norfolk, Va.	56	28	14	5	3	6	5
Richmond, Va.	103	68	18	11	4	2	6
Savannah, Ga.	56	33	13	7	3	-	4
St. Petersburg, Fla.	65	58	2	3	1	1	3
Tampa, Fla.	71	51	7	6	3	4	5
Washington, D.C.	175	91	47	22	8	7	10
Wilmington, Del.	40	30	8	2	-	-	1
E.S. CENTRAL	861	584	177	57	22	21	47
Birmingham, Ala.	138	85	30	15	1	7	3
Chattanooga, Tenn.	85	62	17	4	2	-	9
Knoxville, Tenn.	113	76	24	6	3	4	10
Louisville, Ky.	106	69	23	6	3	5	4
Memphis, Tenn.	174	121	30	9	11	3	17
Mobile, Ala.	42	25	13	3	1	-	1
Montgomery, Ala.	75	57	13	3	1	1	1
Nashville, Tenn.	128	89	27	11	-	1	2
W.S. CENTRAL	1,760	1,105	381	172	54	48	67
Austin, Tex.	63	48	7	3	1	4	5
Baton Rouge, La.	60	40	15	1	2	2	-
Corpus Christi, Tex.§	48	37	10	1	-	-	1
Dallas, Tex.	224	135	51	24	9	5	6
El Paso, Tex.	67	38	15	7	4	3	8
Fort Worth, Tex	88	58	14	11	2	3	6
Houston, Tex.§	734	436	169	89	24	16	18
Little Rock, Ark.	69	44	17	7	1	-	3
New Orleans, La.§	115	71	25	11	4	4	-
San Antonio, Tex.	193	124	40	15	5	9	16
Shreveport, La.	21	13	6	1	1	-	3
Tulsa, Okla.	78	61	12	2	1	2	1
MOUNTAIN	685	449	140	49	22	34	29
Albuquerque, N. Mex.	75	43	15	7	10	1	1
Colo. Springs, Colo.	38	23	8	4	-	3	3
Denver, Colo.	89	64	17	5	2	1	1
Las Vegas, Nev.	111	67	29	10	-	5	12
Ogden, Utah	31	20	7	2	-	2	2
Phoenix, Ariz.	161	105	30	9	5	11	7
Pueblo, Colo.	27	21	4	2	-	-	1
Salt Lake City, Utah	42	23	7	4	1	7	-
Tucson, Ariz.	120	83	23	6	4	4	2
PACIFIC	2,289	1,500	422	236	73	50	138
Berkeley, Calif.	21	15	4	2	-	-	2
Fresno, Calif.	96	65	17	5	5	4	14
Glendale, Calif.	34	22	9	2	1	-	3
Honolulu, Hawaii	55	36	13	5	1	-	8
Long Beach, Calif.	78	53	16	7	1	1	8
Los Angeles Calif.	723	471	129	82	29	7	21
Oakland, Calif.	98	62	12	13	1	9	3
Pasadena, Calif.	31	19	2	5	2	3	4
Portland, Oreg.	147	100	30	7	5	5	14
Sacramento, Calif.	168	103	42	16	3	4	15
San Diego, Calif.	196	121	37	25	6	6	13
San Francisco, Calif.	172	103	26	34	3	5	5
San Jose, Calif.	209	144	37	19	9	-	17
Seattle, Wash.§	160	109	32	11	3	5	1
Spokane, Wash.	50	41	7	2	-	-	5
Tacoma, Wash.	51	36	9	1	4	1	5
TOTAL	13,700††	8,968	2,736	1,191	386	407	883

*Mortality data in this table are voluntarily reported from 121 cities in the United states, most of which have populations of 100,000 or more. A death is reported by the place of its occurrence and by the week that the death certificate was filed. Fetal deaths are not included.

**Pneumonia and influenza.

†Because of changes in reporting methods in these 3 Pennsylvania cities, these numbers are partial counts for the current week. Complete counts will be available in 4 to 6 weeks.

††Total includes unknown ages.

§Data not available. Figures are estimates based on average of past available 4 weeks.

TABLE V. Estimated years of potential life lost (YPLL) before age 65* and cause-specific mortality, by cause of death — United States, 1986

Cause of Mortality (ICD, 9th Revision)	YPLL for Persons Dying in 1986	Cause-Specific Mortality, 1986† (Rate/100,000)
All Causes (Total)	12,054,242	870.8
Unintentional Injuries§ (E800–E949)	2,371,024	39.7
Malignant Neoplasms (140–208)	1,821,682	193.3
Diseases of the Heart (390–398,402,404–429)	1,534,607	318.7
Suicide/Homicide (E950–E978)	1,342,693	22.0
Congenital Anomalies (740–759)	651,523	5.1
Prematurity¶ (765–769)	438,351	2.8
Sudden Infant Death Syndrome (798)	313,555	2.0
Acquired Immunodeficiency Syndrome**	246,823	3.6
Cerebrovascular Disease (430–438)	232,583	61.3
Chronic Liver Diseases and Cirrhosis (571)	225,028	10.9
Pneumonia and Influenza (480–487)	166,389	29.2
Chronic Obstructive Pulmonary Diseases (490–496)	127,889	31.3
Diabetes Mellitus (250)	126,652	15.1

*For details of calculation, see footnotes to Table V, *MMWR* 1988;37:45.
†Cause-specific mortality rates as reported in the National Center for Health Statistics' *Monthly Vital Statistics Report* are compiled from a 10% sample of all deaths.
§Equivalent to accidents and adverse effects.
¶Category derived from disorders relating to short gestation and respiratory distress syndrome.
**Reflects CDC surveillance data.

Syphilis — Continued

5. CDC. Increases in primary and secondary syphilis—United States. MMWR 1987;36:393–7.
6. Lee CB, Brunham RC, Sherman E, Harding GKM. Epidemiology of an outbreak of infectious syphilis in Manitoba. Am J Epidemiol 1987;125:277–83.
7. CDC. Early syphilis—Broward County, Florida. MMWR 1987;36:221–3.
8. CDC. Continuing increase in infectious syphilis—United States. MMWR 1988;37:35–8.
9. CDC. Human immunodeficiency virus infection in the United States: a review of current knowledge. MMWR 1987;36(suppl S–6):8.
10. Cameron DW, D'Costa LJ, Ndinya-Achola JO, Piot P, Plummer FA. Incidence and risk factors for female to male transmission of HIV [Abstract]. IV International Conference on AIDS. Book 1. Stockholm, June 12–16, 1988:275.
11. Simonsen JN, Cameron DW, Gakinya MN, et al. Human immunodeficiency virus infection among men with sexually transmitted diseases: experience from a center in Africa. N Engl J Med 1988;319:274–8.
12. Holmberg SD, Stewart JA, Gerber AR, et al. Prior herpes simplex virus type 2 infection as a risk factor for HIV infection. JAMA 1988;259:1048–50.

Epidemiologic Notes and Reports

Update — Listeriosis and Pasteurized Milk

Listeria monocytogenes can be cultured from approximately 5% of raw (unpasteurized) milk samples, and case reports have shown that disease in humans can be caused by consumption of unpasteurized contaminated milk (*1–4*). Other reports suggesting that *L. monocytogenes* is relatively resistant to heat have raised concern about the effectiveness of pasteurization for eliminating this organism from milk (*1,5*). In an outbreak of listeriosis that occurred in Massachusetts in 1983, pasteurized whole or 2% milk was implicated as the source of infection (*6*). An inspection of the milk-producing plant detected no apparent breach in the pasteurization process, thereby prompting further interest in the effectiveness of pasteurization. Since then, several studies have shown that *L. monocytogenes* is inactivated by standard pasteurization practices (*4,7–10*). This report summarizes information regarding the effectiveness of pasteurization in eliminating *L. monocytogenes* from milk.

Current state and local regulations throughout the United States specify time and temperature conditions for pasteurization. These regulations call for milk to be heated to at least 71.7 C for 15 seconds (i.e., high-temperature short-time [HTST] process) or to 62.8 C for 30 minutes (*11*). In one study using milk artificially inoculated with *L. monocytogenes*, investigators found that 0.9 seconds at 71.7 C is needed for each one $\log_{10}$ reduction in the number of *L. monocytogenes* organisms (*7*). Other studies of artificially inoculated milk have concluded that at the same temperature, a period of 2.75 to 3.1 seconds is needed for each $\log_{10}$ reduction (*4*). Since the concentration of *L. monocytogenes* likely to be present in contaminated raw milk is estimated to be approximately 10 organisms per mL, these data suggest that there is a substantial margin of safety in the HTST pasteurization process (*4*). Another study found that at 62 C, each $\log_{10}$ reduction in the number of surviving *L. monocytogenes* organisms could be achieved in 6 to 20 seconds, well within the 30 minutes required for pasteurization at this temperature (*8*). Other investigators also have concluded that

Listeriosis – Continued

L. monocytogenes will not survive the normal milk pasteurization process (*9*) and have questioned previously reported methods that suggested *L. monocytogenes* could survive pasteurization (*8,9*).

In a pasteurization study designed to simulate the natural situation more closely, milk from cows that had been purposefully infected with *L. monocytogenes* was used, along with several different *L. monocytogenes* isolation procedures (*12*). Viable *L. monocytogenes* could be recovered after minimum HTST treatment (71.7 C for 15 seconds), although not after treatment at 76.4 C–77.8 C for 15 seconds. This survival was attributed in part to protection of *L. monocytogenes* within leukocytes in milk (intracellular *L. monocytogenes* organisms are found in milk from infected cows but not in artificially inoculated milk). Because this milk had *L. monocytogenes* concentrations of 10^3 to 10^4 per mL, higher concentrations than are usually found when *L. monocytogenes* is present in raw milk, these findings may not be applicable to usual production conditions. In another study in which investigators identified cows that had been naturally infected with *L. monocytogenes* (*10*), proper pasteurization was found to inactivate *L. monocytogenes* in milk contaminated through natural infection as well as in artificially inoculated milk.

After reviewing these studies, a World Health Organization Working Group on foodborne listeriosis recently concluded that "pasteurization is a safe process which reduces the number of *L. monocytogenes* occurring in raw milk to levels that do not pose an appreciable risk to human health" (*4*).

Reported by: Milk Safety Br, Div of Cooperative Programs, Center for Food Safety and Applied Nutrition, Food and Drug Administration. Meningitis and Special Pathogens Br, Div of Bacterial Diseases, Center for Infectious Diseases, CDC.

Editorial Note: Improperly performed pasteurization and the occurrence of contamination after pasteurization are the most likely explanations for the presence of *L. monocytogenes* in pasteurized milk. Two percent of pasteurized milk samples from more than 700 U.S. milk-producing plants were culture-positive for *Listeria* species, primarily *L. monocytogenes*, in a survey conducted during 1987 and 1988 as part of the Food and Drug Administration's (FDA's) Dairy Product Safety Initiatives (*13*). Even when pasteurized milk is proven to be contaminated by bacteria, the exact source and mode of contamination may be difficult to identify. For example, in a recent large epidemic of salmonellosis in Illinois, the epidemic strain of *Salmonella typhimurium* was isolated from patients and the implicated pasteurized milk products they had drunk (*14*). However, an inspection of the plant by a task force of FDA officials and other experts could not prove how the milk was contaminated. Efforts to ensure that milk is safe from *L. monocytogenes* contamination should focus on promoting proper methods of pasteurization and on identifying and eliminating sources of postpasteurization contamination.

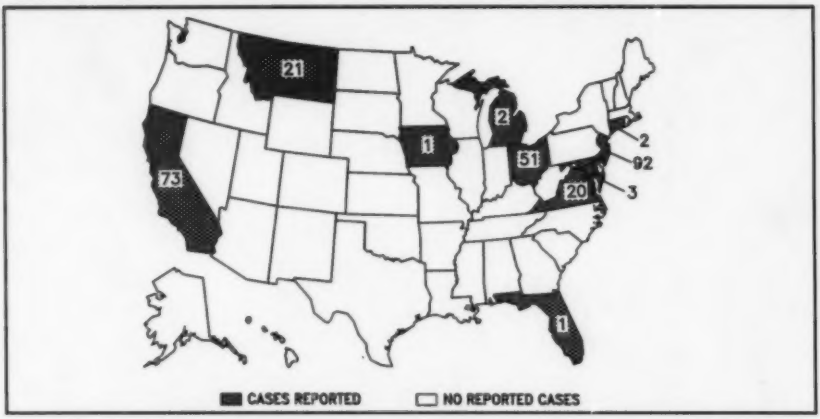
References

1. Bryan FL. *Listeria monocytogenes*. In: Riemann H, Bryan FL, eds. Food-borne infections and intoxications. 2nd ed. New York: Academic Press, 1979:266–8.
2. Lovett J, Francis DW, Hunt JM. *Listeria monocytogenes* in raw milk: detection, incidence, and pathogenicity. J Food Protection 1987;50:188–92.
3. Hayes PS, Feeley JC, Graves LM, Ajello GW, Fleming DW. Isolation of *Listeria monocytogenes* from raw milk. Appl Environ Microbiol 1986;51:438–40.
4. WHO Working Group. Foodborne listeriosis. Bull WHO 1988;66:421–8.
5. Bearns RE, Girard KF. The effect of pasteurization on *Listeria monocytogenes*. Can J Microbiol 1958;4:55–61.

Listeriosis — Continued

6. Fleming DW, Cochi SL, MacDonald KL, et al. Pasteurized milk as a vehicle of infection in an outbreak of listeriosis. N Engl J Med 1985;312:404–7.
7. Bradshaw JG, Peeler JT, Corwin JJ, et al. Thermal resistance of *Listeria monocytogenes* in milk. J Food Protection 1985;48:743–5.
8. Donnelly CW, Briggs EH, Donnelly LS. Comparison of heat resistance of *Listeria monocytogenes* in milk as determined by two methods. J Food Protection 1987;50:14–7.
9. Beckers HJ, Soentoro PSS, Delfgou-van Asch EHM. The occurrence of *Listeria monocytogenes* in soft cheeses and raw milk and its resistance to heat. Intl J Food Microbiol 1987;4:249–56.
10. Farber JM, Sanders GW, Emmons DB, McKellar RC. Heat resistance of *Listeria monocytogenes* in artificially-inoculated and naturally-contaminated raw milk [Abstract]. J Food Protection 1987;50:893.
11. Food and Drug Administration. Grade A pasteurized milk ordinance. Washington, DC: US Department of Health and Human Services, Public Health Service, 1985; FDA publication no. 229.
12. Doyle MP, Glass KA, Beery JT, Garcia GA, Pollard DJ, Schultz RD. Survival of *Listeria monocytogenes* in milk during high-temperature, short-time pasteurization. Appl Environ Microbiol 1987;53:1433–8.
13. Food and Drug Administration. FDA's dairy product safety initiatives: 2nd year status report to the states. Washington, DC: US Department of Health and Human Services, Public Health Service, 1988.
14. Ryan CA, Nickels MK, Hargrett-Bean NT, et al. Massive outbreak of antimicrobial-resistant salmonellosis traced to pasteurized milk. JAMA 1987;258:3269–74.

FIGURE I. Reported measles cases — United States, Weeks 45–48, 1988



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